

WHAT IS CLAIMED IS:

1. A coil-embedded dust core, comprising:
a green body formed from ferromagnetic metal particles coated with
5 insulating material; and
a coil embedded inside the green body, the coil being formed from a flat,
insulation-coated conductor wound in a coil.
2. A coil-embedded dust core according to claim 1, wherein the coil
10 is formed from a rectangular wire wound in a coil.
3. A coil-embedded dust core according to claim 1 or claim 2,
wherein the coil has parts that function as terminal sections.
- 15 4. A coil-embedded dust core according to claim 1, wherein front
and back surfaces of end sections of the coil are exposed outside the green
body.
5. A coil-embedded dust core according to claim 3, wherein the
20 terminal sections are wider than other parts of the coil.
6. A coil-embedded dust core according to claim 2, wherein lead-out
end sections of the rectangular wire that are formed into wide terminal
sections through a flattening process.
- 25 7. A coil-embedded dust core according to claim 1, wherein the
green body has front and back surfaces that oppose each other across a
predetermined space and side surfaces formed around the front and back

surfaces, and each of the end sections of the coil extends outside the green body along one of the side surfaces.

8. A coil-embedded dust core according to claim 1, wherein the
5 rectangular wire has generally flat parallel surfaces defining a width of the rectangular wire and side surfaces defining a height of the rectangular wire on both sides of the generally flat parallel surfaces, the generally flat parallel surfaces being wider than the side surfaces, wherein the rectangular wire is wound in a coil in edgewise winding to form layers of windings in the coil
10 such that the generally flat parallel surfaces of the windings are substantially stacked on top of the other.

9. A coil-embedded dust core according to claim 8, wherein the coil defines an outer circumference side and an inner circumference side across
15 the generally flat parallel surfaces, and the height of the generally flat conductor on the outer circumference side is smaller than the height thereof on the inner circumference side.

10. A coil-embedded dust core, comprising;
20 a green body in a rectangular solid shape having front and back surfaces that oppose each other across a predetermined space and side surfaces formed around the front and back surfaces;
a coil having a winding section and end sections pulled out from the winding section, the coil having at least the winding section placed inside the
25 green body; and
end section housing chambers, each of which opens to one of the side surfaces of the green body and houses one of the end sections of the coil exposed from the green body.

11. A coil-embedded dust core according to claim 10, wherein the end section housing chambers are formed in corner sections of the green body.

12. A coil-embedded dust core, comprising:

5 a dust core section molded with magnetic powder formed from ferromagnetic metal particles coated with an insulating material and a coil embedded inside the magnetic powder; and

terminal sections outside the dust core section;

10 where the coil and the terminal sections are connected to one another outside the dust core section.

13. A coil-embedded dust core according to claim 12, wherein the terminal sections are surface-mount terminal sections extending from side surfaces to a bottom surface of the dust core section.

14. A coil-embedded dust core, comprising:

15 a dust core section molded with magnetic powder formed from ferromagnetic metal particles coated with an insulating material and a coil embedded inside the magnetic powder; and

20 terminal sections outside the dust core section,

wherein the coil and the terminal sections are not connected to one another.

15 15. A method for manufacturing a coil-embedded dust core in which a coil is embedded within a green body, the method comprising:

25 preparing a preformed body by placing a coil formed from a flat, insulation-coated conductor in a raw material powder containing a soft magnetic metal powder and an insulating material; and

compressing formation of the raw material powder with the coil placed therein.

16. A manufacturing method for a coil-embedded dust core
5 according to claim 15, wherein the step of preparing a preformed body comprising:

placing parts of the coil that make up the terminal sections outside the raw material powder;

after the step of compressing formation of the raw material powder,

10 heat treating the insulating material;

forming a rust-proof coat on the surface of the terminal sections of the coil; and

sandblasting surfaces of the terminal sections.

15 17. A coil for a coil-embedded dust core, the coil comprising: a generally flat conductor wound in a coil; and an insulation layer coated on the generally flat conductor.

18. A coil for a coil-embedded dust core according to claim 17,
20 wherein the generally flat conductor comprises a rectangular wire.

19. A coil for a coil-embedded dust core according to claim 17,
wherein the generally flat conductor has a cross section that is one of rectangular, trapezoid and elliptical.

25 20. A coil for a coil-embedded dust core according to claim 17,
wherein the generally flat conductor is wound in a coil in edgewise winding.

21. A coil for a coil-embedded dust core according to claim 17,
wherein the generally flat conductor has generally flat parallel surfaces
defining a width of the generally flat conductor and side surfaces defining a
height of the generally flat conductor on both sides of the generally flat
5 parallel surfaces, the generally flat parallel surfaces being wider than the
side surfaces, wherein the generally flat conductor is wound in a coil in
edgewise winding to form layers of windings in the coil such that the
generally flat parallel surfaces of the windings are substantially stacked on
top of the other.

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22. A coil for a coil-embedded dust core according to claim 21,
wherein the coil defines an outer circumference side and an inner
circumference side across the generally flat parallel surfaces, and the height
of the generally flat conductor on the outer circumference side is smaller than
15 the height thereof on the inner circumference side.

23. A coil for a coil-embedded dust core according to claim 21,
wherein the width of the generally flat conductor is about 0.5 – 5.0 mm and
the height of the generally flat conductor is about 0.1 – 1.0 mm.

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